BUREAU OF WATER

South Carolina Department of Health and Environmental Control

South Carolina Catawba/Wateree River Basin Facilities Water Use Report 2004

January 2006

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South Carolina
Catawba/Wateree River Basin
Facilities Water Use Report
2004

South Carolina Department of Health and Environmental Control
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Bureau of Water
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Introduction

The Catawba/Wateree River Basin begins in South Carolina north of Rock Hill where the Catawba River enters Lake Wylie at the North Carolina border and concludes at the confluence of the Wateree and Congaree Rivers south of Columbia. The basin is comprised of twenty-one (21) watersheds draining approximately 2,322 square miles of land surface in portions of eight (8) counties in the Piedmont, Sandhills, and Upper Coastal Plain physiographic provinces of South Carolina. Approximately 81% of the land is forested/scrub, 12% is agricultural, 4% is urban and 3% is surface water. Three (3) urban centers within the Catawba/Wateree River Basin include the Charlotte-Rock Hill-Gastonia MSA (metropolitan statistical area), Lancaster, and Camden. As with other areas of South Carolina, demand on the water resources is increasing within the basin. In addition to the major urban centers many small municipalities utilize surface waters in the basin for drinking water supplies, while power production, industry, agriculture, and other users concurrently place increasing demands on the water resource.

Purpose and Methodology

The purpose of the *South Carolina-Catawba/Wateree River Basin Facilities Water Withdrawal Report 2004* is to summarily present reported water withdrawals in the Catawba/Wateree River Basin by county and use category during calendar year 2004. The South Carolina Surface Water Withdrawal and Reporting Act, 49-4-10 et seq., and the South Carolina Groundwater Use and Reporting Act, 49-5-10 et seq., require water users that withdraw three million gallons or more in any given month to register with or obtain a permit from and report that use annually to the South Carolina Department of Health and Environmental Control (SCDHEC). Annual reported water use by registered and permitted users provides the base data for this report. Water use is reported in **million gallons** per month. The SCDHEC maintains the water use database utilized in this report.

The Catawba/Wateree River Basin contains twenty-one (21) watersheds draining approximately 2,322 square miles (1.5 million acres) within portions of York, Chester, Lancaster, Fairfield, Kershaw, Richland, Sumter, and Lee counties. The Catawba/Wateree River Basin extends through the three physiographic regions of South Carolina: the Piedmont, the Sandhills, and the Upper Coastal Plain. The basin contains approximately 2,943 miles of stream and 26,308 acres of lake water. Additional information on the Catawba/Wateree River Basin may be found in SCDHEC Technical Report No. 011-99, *Water Quality Assessment Catawba River Basin*, 1999.

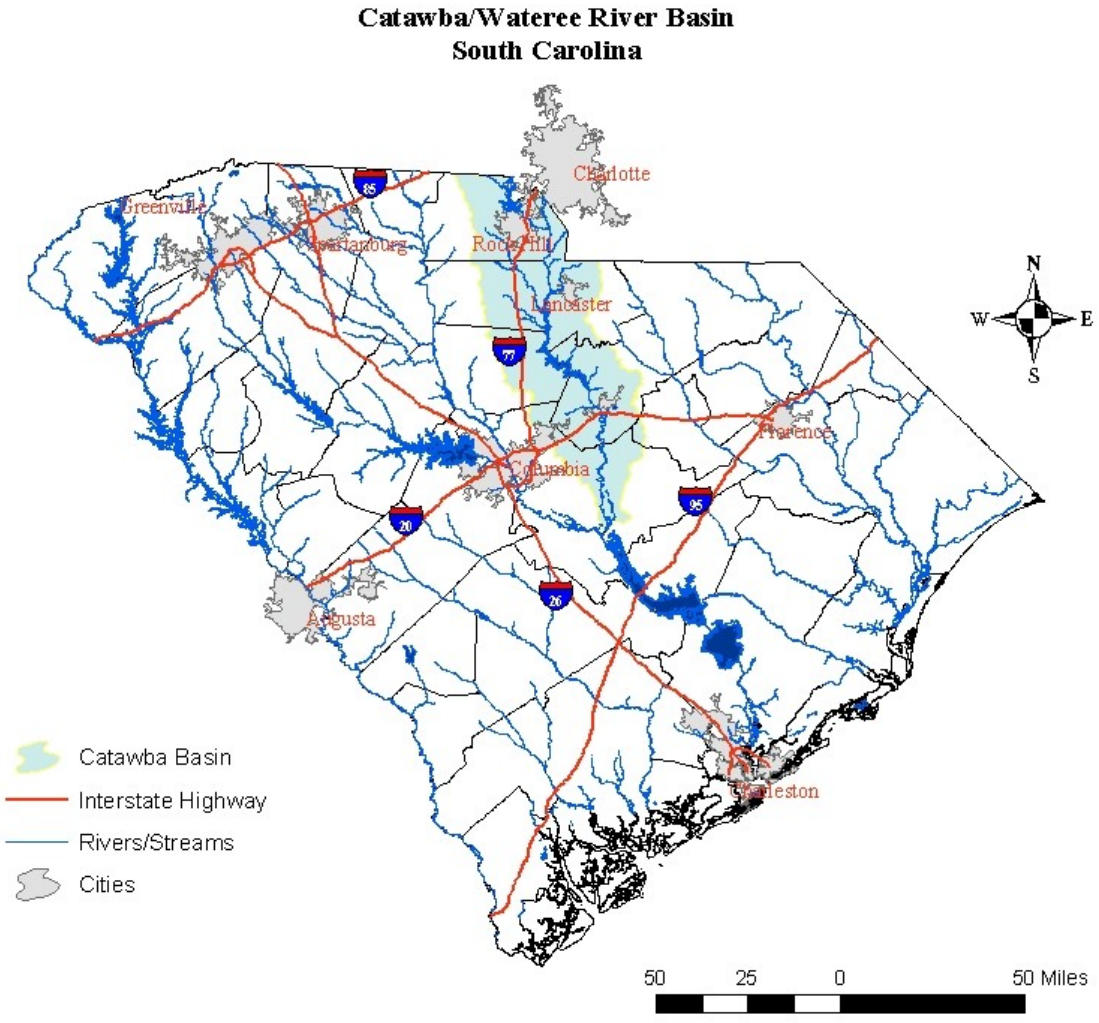


Figure 1

Water withdrawal is defined for surface water and groundwater as "…withdrawing (ground/surface) water in excess of three million gallons in any given month from a single well or intake or multiple wells or intakes under common ownership within a one-

mile radius from any existing well or intake or proposed well or intake". Water use reporting of withdrawals above this threshold is required annually, based on monthly usage. Therefore, withdrawals less than the three million gallon per month reporting threshold (private home wells and small community well systems, for example) are not included in this report.

Surface water and groundwater withdrawers are registered and/or permitted in all counties of South Carolina. Additional information on the Capacity Use/Water Use program may be obtained from the Department's webpage at www.scdhec.gov/water/html/gw.html.

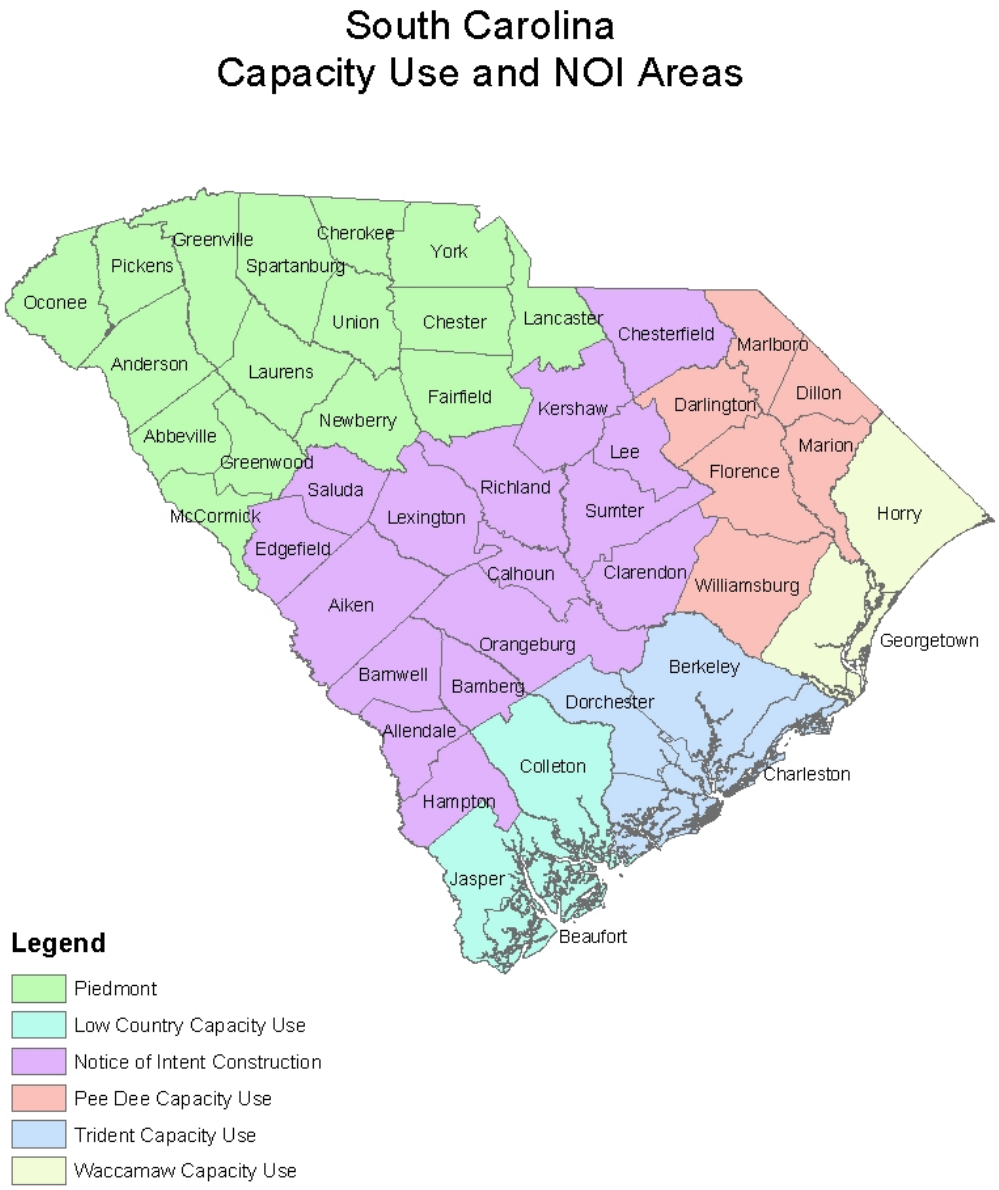


Figure 2

Water withdrawals are reported for the following water use categories for all registered and permitted withdrawers:

Aquaculture water use (AQ) -- Water used for raising, farming and/or harvesting of organisms that live in water, such as fish, shrimp and other shellfish and vegetal matter (seaweed).

Golf course irrigation (GC) -- Water applied to maintain golf course turf, including tee boxes, fairways, putting greens, associated practice areas and periphery aesthetic landscaping.

Hydroelectric water use (PH) -- Water used in generating electricity where turbine generators are driven by falling water.

Industrial water use (IN) -- Water used for commercial and industrial purposes, including fabrication, processing, washing, in-plant conveyance and cooling.

Irrigation water use (IR) -- Water that is used for agricultural and landscaping purposes including turf farming and livestock management.

Mining process (MI) -- Water used in mine operations, including mining, processing, washing and cooling,

Other use (OT) -- Any use of surface water or groundwater not specifically identified in any of the other categories.

Thermoelectric water use (PT) -- Water used in generating electricity from fossil fuel (coal, oil, natural gas), geothermal, biomass, solid waste, or nuclear energy.

Water supply (WS) -- Water withdrawn by public and private water suppliers and conveyed to users or groups of users. Water suppliers provide water for a variety of uses including domestic, commercial, industrial and public water use.

Currently within the Catawba/Wateree River Basin 49 facilities are registered water withdrawers through the Surface Water Withdrawal and Reporting Act and the Groundwater Use and Reporting Act, respectfully, for water withdrawal activities.

Total Facilities		**49**	
Surface Water Facilities		**25**	
	(intakes)		**26**
Groundwater Facilities		**13**	
	(wells)		**44**
Dual Withdrawal		**11**	
	(intakes)		**22**
	(wells)		**28**

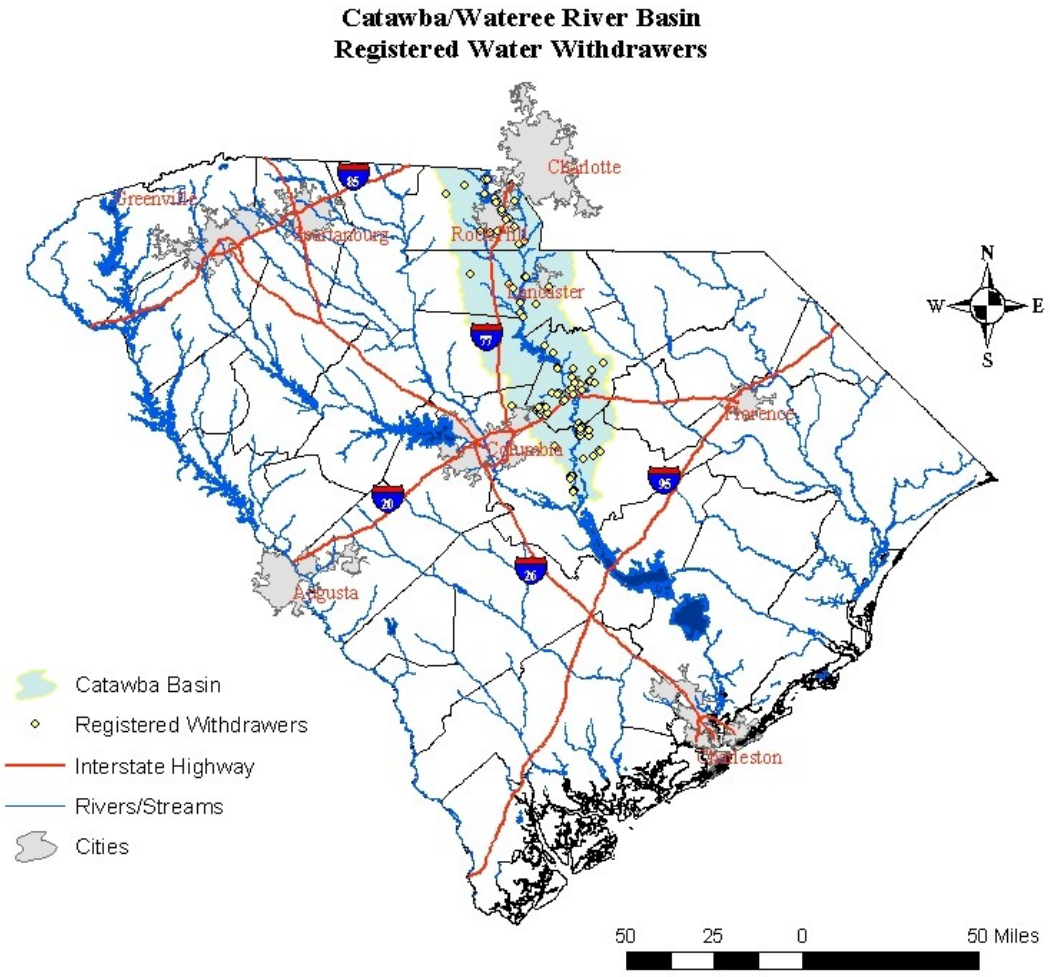


Figure 3

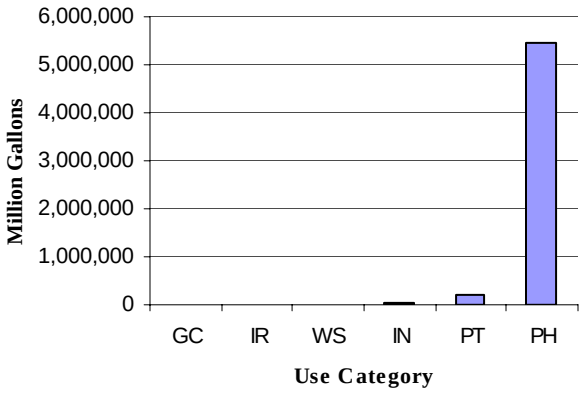
For 2004, total reported water withdrawal in the basin was 5,714,252.22 million gallons, of which 5,453,804.00 million gallons (95.4%) was flow-through hydroelectric power generation. Surface water withdrawals accounted for nearly 100% of the use with 5,712,604.67 million gallons reported withdrawn while reported groundwater withdrawals accounted for 1,647.55 million gallons. Transfers out of the basin under two (2) Inter-basin Transfer (IBT) permits accounted for 6,493.20 million gallons (or 17.79 million gallons per day) of the total reported surface water withdrawal. Transfers into the basin under two (2) IBT permits accounted for 1,643.00 million gallons (or 4.50 million gallons per day). The net transfer out of the basin was 4,850.20 million gallons (or 13.29 million gallons per day).

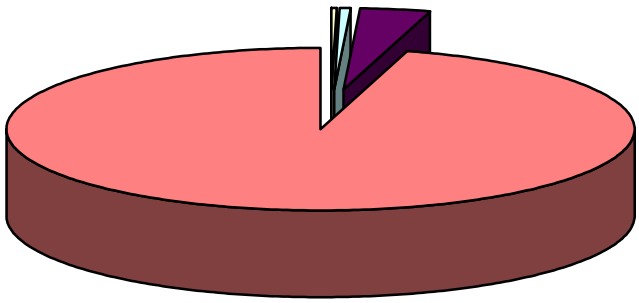
Surface water use (in million gallons) by category is as follows:

Graphics 1

Total Reported Surface Water Use by Category

Category	Total Reported Surface Water Use (mg)
GC	**218.18**
IR	**394.30**
WS	**15,768.62**
IN	**34,933.37**
PT	**207,486.20**
PH	**5,453,804.00**
Total	**5,712,604.66**





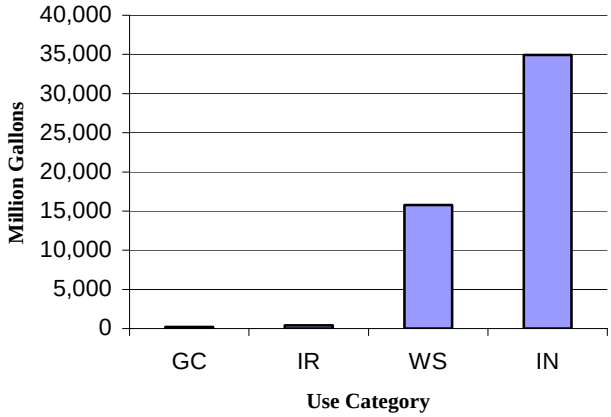
Golf Course
Agricultural Irrigation
Water Supply
Industrial Process
Thermoelectic
Hydroelectric

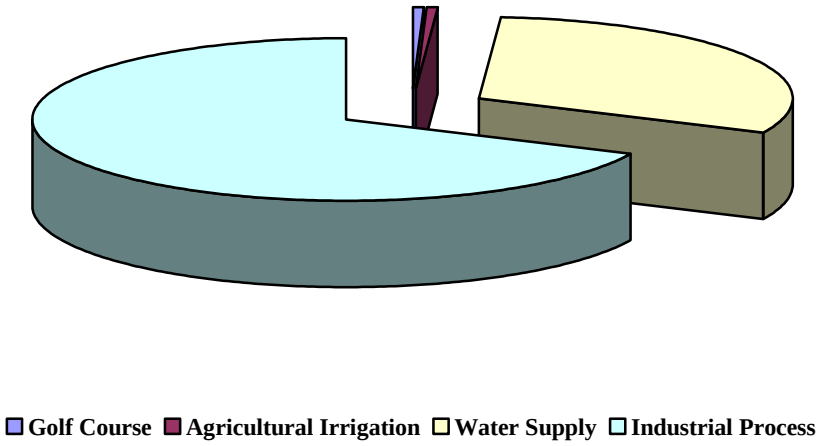
Surface water use (in million gallons) by category (excluding hydroelectric and thermoelectric power production):

Graphics 2

Reported Surface Water Use by Category
(excluding power production)

Category	Reported Surface Water Use Non-Power (mg)
GC	**218.18**
IR	**394.30**
WS	**15,768.62**
IN	**34,933.37**
Total	**51,314.47**



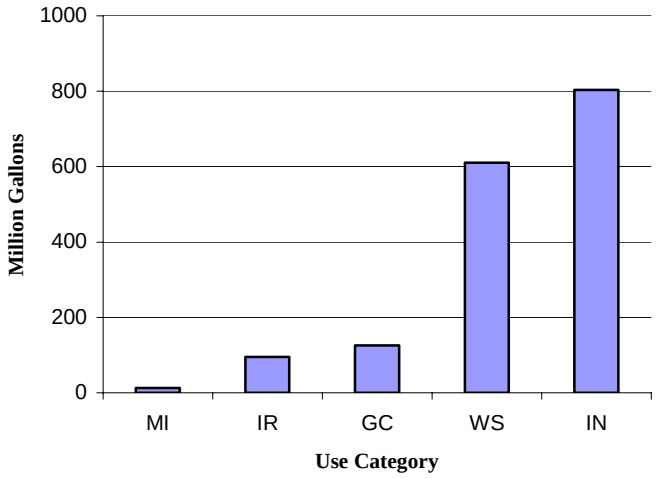


Groundwater use (in million gallons) by category is as follows:

Graphics 3

Total Reported Groundwater Use by Category

Category	Total Reported Groundwater Use (mg)
MI	**13.00**
IR	**94.93**
GC	**125.57**
WS	**610.78**
IN	**803.28**
Total	**1,647.57**



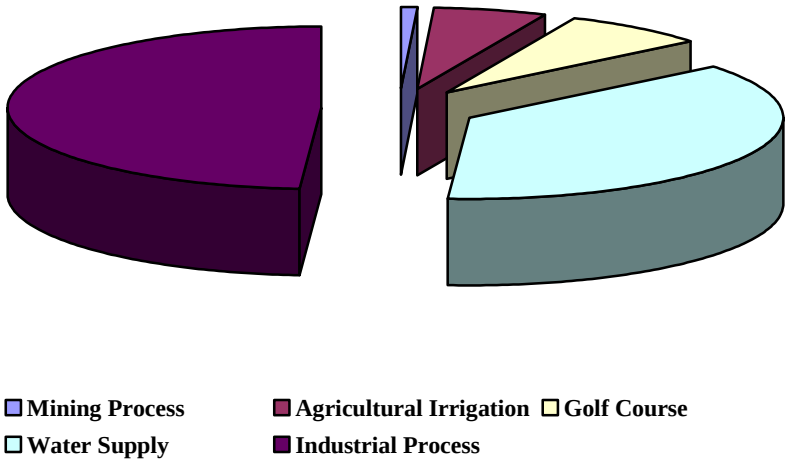


Table 1
Total Reported Surface Water Withdrawal
by County

Use by County Surface Water 2004 Total (mg)

County	Agriculture	Golf Course	Industrial	Water Supply	Thermoelectric	Hydroelectric	Total
York	2.45	92.38	22,809.90	5,101.00	37,762.00	932,089.00	997,856.73
Lancaster	0.00	2.70	1,010.53	7,751.76	0.00	1,093,794.00	1,102,558.99
Chester	0.00	14.00	0.00	1,097.20	0.00	2,171,229.00	2,172,340.20
Fairfield	0.00	0.00	0.00	0.00	0.00	49,425.00	49,425.00
Kershaw	0.00	57.47	923.74	1,818.66	0.00	1,207,267.00	1,210,066.87
Richland	0.00	50.31	10,189.19	0.00	169,724.20	0.00	179,963.70
Sumter	391.85	1.33	0.00	0.00	0.00	0.00	393.18
Total	394.30	218.18	34,933.37	15,768.62	207,486.20	5,453,804.00	5,712,604.67

Chart 1
Total Reported Surface Water Withdrawal by County

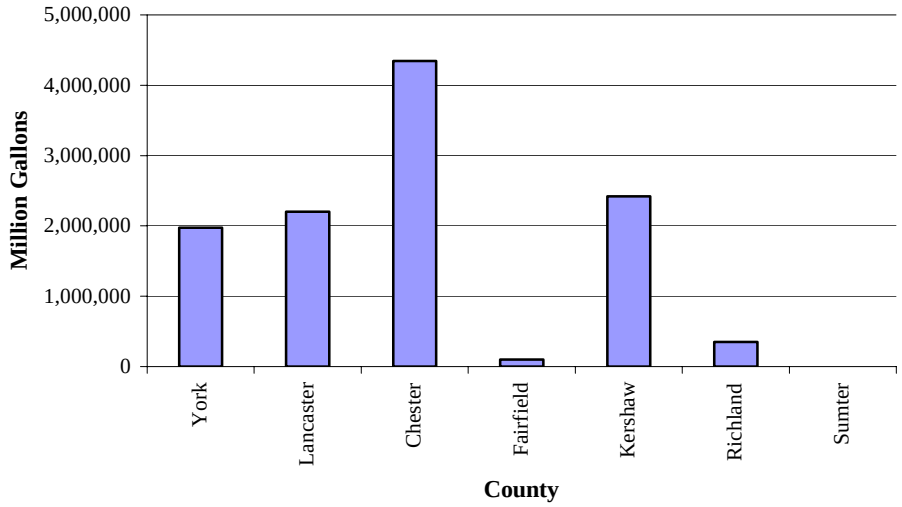


Table 2
Reported Surface Water Use by County
(excluding hydroelectric production)

Use by County Surface Water (excluding Hydroelectric) 2004 Total (mg)

County	Agriculture	Golf Course	Industrial	Water Supply	Thermoelectric	Total
York	2.45	92.38	22,809.90	5,101.00	37,762.00	65,767.73
Lancaster	0.00	2.70	1,010.53	7,751.76	0.00	8,764.99
Chester	0.00	14.00	0.00	1,097.20	0.00	1,111.20
Fairfield	0.00	0.00	0.00	0.00	0.00	0.00
Kershaw	0.00	57.47	923.74	1,818.66	0.00	2,799.87
Richland	0.00	50.31	10,189.19	0.00	169,724.20	179,963.70
Sumter	391.85	1.33	0.00	0.00	0.00	393.18
Total	394.30	218.18	34,933.37	15,768.62	207,486.20	258,800.67

Chart 2
Reported Surface Water Withdrawals (excluding hydroelectric production)

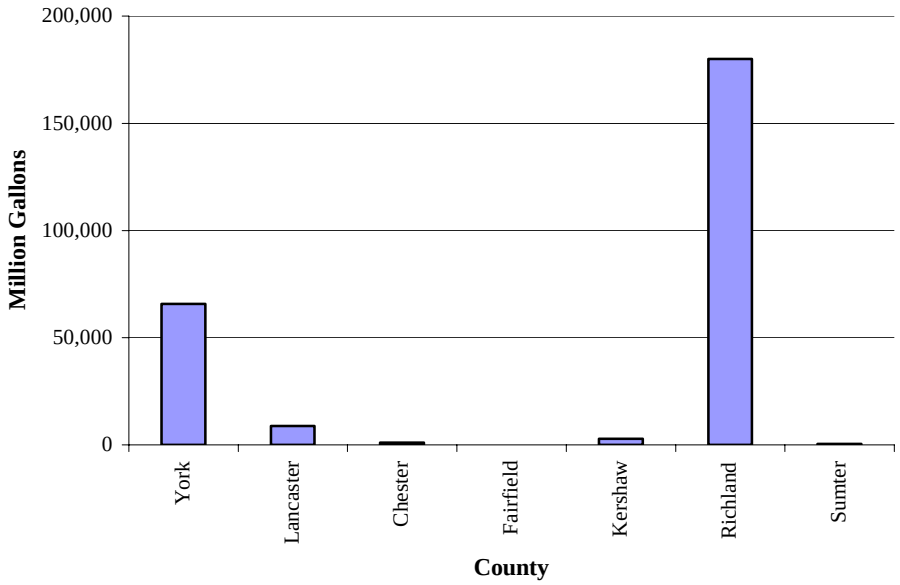


Table 3
Reported Surface Water Use by County
(excluding all power production)

Use by County Surface Water 2004 Total (mg)

County	Agriculture	Golf Course	Industrial	Water Supply	Total
York	2.45	92.38	22,809.90	5,101.00	28,005.73
Lancaster	0.00	2.70	1,010.53	7,751.76	8,764.99
Chester	0.00	14.00	0.00	1,097.20	1,111.20
Fairfield	0.00	0.00	0.00	0.00	0.00
Kershaw	0.00	57.47	923.74	1,818.66	2,799.87
Richland	0.00	50.31	10,189.19	0.00	10,239.50
Sumter	391.85	1.33	0.00	0.00	393.18
Total	394.30	218.19	34,933.36	15,768.62	51,314.47

Chart 3
Reported Surface Water Withdrawal by County (excluding all power production)

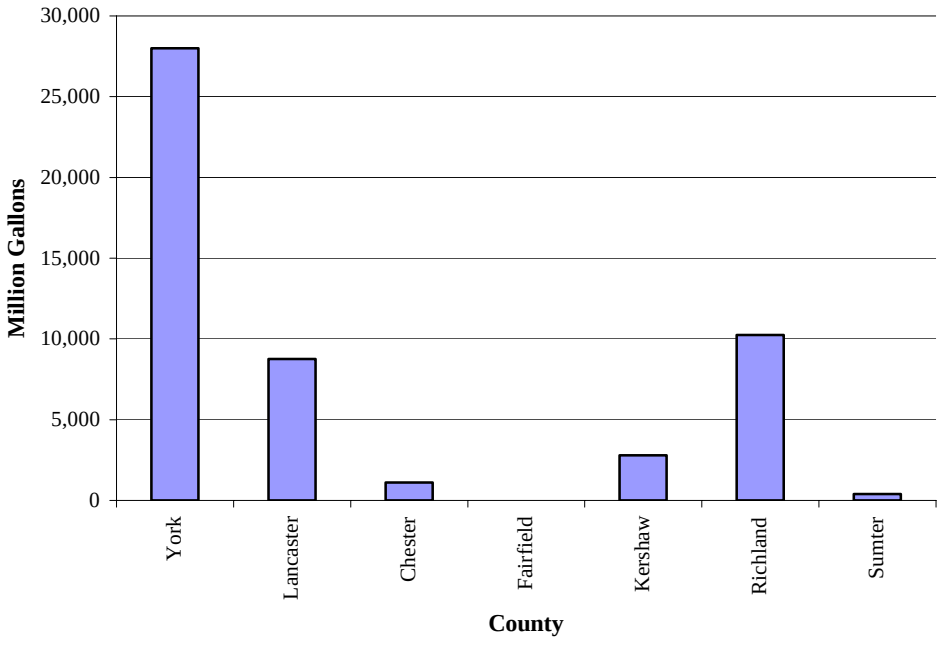


Table 4
Total Reported Groundwater Use
by County

Use by County Groundwater

2004 Total (mg)

County	Agriculture	Golf Course	Industrial	Water Supply	Mining	Aquaculture	Thermoelectric	Hydroelectric	Total
York	0.00	58.78	3.69	0.00	13.00	0.00	0.00	0.00	75.47
Lancaster	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	1.22
Chester	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00
Fairfield	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kershaw	0.00	47.56	122.40	306.88	0.00	0.00	0.00	0.00	476.84
Richland	0.00	0.00	677.19	278.34	0.00	0.00	0.00	0.00	955.53
Sumter	94.93	0.00	0.00	25.55	0.00	0.00	0.00	0.00	120.49
Total	94.93	125.56	803.28	610.77	13.00	0.00	0.00	0.00	1,647.55

Chart 4
Total Reported Groundwater Withdrawal
by County